REMARKS

Permission is respectfully requested to amend Figs. 2 and 3 of the drawings in the above-identified application as shown in yellow on the accompanying prints.

The claims previously in the case have been replaced by a set of new claims which are believed to be proper as to form and clearly patentable over the cited references.

Reconsideration is accordingly respectfully requested, for the rejection of the claims as unpatentable over WILSAK in view of UK 1,453,645.

In the purification apparatus of the present invention, it is claimed in claim 19, with respect to Fig. 2, that the crystals separated in second wash column 2s are transported to the first crystallizer 1c via duct 7 in a re-slurried form by admixing the crystals with the (relatively warm) slurry recycle stream exiting the first crystallizer 1c via duct 11. In the embodiment of Fig. 3, the slurry from second separator 2c is transported to first crystallizer 1c via duct 13. The relatively warm recirculation stream derived from the first crystallizer 1c or the first separator 1s provides for an effective means of transport of crystals from the second separator 2s, back to the first crystallizer 1c via path 7, without the need for providing an extra melting equipment at the outlet of second separator 2s. This results in simplified equipment and has a reduced cost, while requiring only a relatively small footprint.

In WILSAK, a process for producing high purity para-xylene is disclosed. By separating some or most of the final product in a first separation (crystallization and washing column) sequence, the amount of material requiring lower temperature refrigeration is reduced. The WILSAK process does not recycle cake back to the first crystallizer from the lower temperature stages, but rather uses a reslurry drum to sufficiently warm the crystals so that additional para-xylene product can be recovered without the need for more refrigeration (WILSAK, column 2, lines 56-63).

As can be seen in Figure 1 of WILSAK, the first crystallizer 100 connects to a separator 30. A reject filtrate stream 3 is input into a second crystallizer 200, which outputs crystals into a mixing drum 32, which also receives the wash filtrate from line 4 derived from the first high-temperature separator 30. According to WILSAK, column 11, lines 41-44, the filtrate stream 4 may optionally be heated by use of a heat exchanger. No crystals are re-slurried from the separator 33 back into the first crystallizer 100, contrary to the present invention where the crystals from the second separator 2c are re-slurried in stream 11 or 13, and fed back to first crystallizer 1c. Figures 2 and 3 of WILSAK also fail to provide the teaching of re-slurrying the crystals of the second separator for transportation back to the first crystallizer.

In column 10 of WILSAK, lines 9-21, alternative embodiments are mentioned in which a portion of the crystallizer effluent could be recycled back to the crystallizer 100, or from the downstream part of the separator 30 back to the crystallizer. This, however, is completely different from re-slurrying a part of the (relatively cold) output stream of the second separator in the (relatively warm) output stream of the first crystallizer (Figure 2) or first separator (Figure 3).

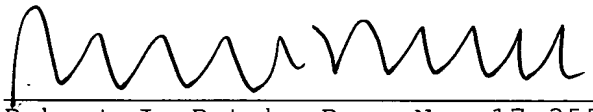
In UK '645 a two-stage freeze crystallization process and apparatus is shown, for instance, for desalination of water, in which the first stage operates at higher temperatures than the second stage which handles a more concentrated solution with lower freezing point. As can be seen in the figure of UK '645, the output of the second separator or wash column 20 is fed to a second melter or condenser 23 and is transported as a low salinity brine back to the first stage freezer-crystallizer 14. Instead of additional equipment in the form of a second melter/condenser, the present invention transports crystals from the second separator back to the first crystallizer via a re-slurrying step. Using the relatively warm output from the first separator or first crystallizer to provide a re-slurrying step, provides an efficient means of transport for the crystals produced in the second separator without the need for additional melting equipment or additional energy input into the process.

As the claims now in the case clearly bring out these distinctions with ample particularity, it is believed that they are all patentable, and reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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APPENDIX:

The Appendix includes the following items:

- annotated sheets showing changes to Figures 2 and 3